

## REMARKS

### I. PENDING CLAIMS AND SUPPORT FOR AMENDMENTS

Upon entry of this amendment, claims 1-44 will be pending in this application.

Claims 1-28 and 44 have been withdrawn from consideration by the Examiner pursuant to a requirement for restriction and election of claims 29-43 by Applicants, which election Applicants affirm.

Applicants have amended the claims to clarify that the granulated powder is the purification material, and have amended claims 30-43 to correct the claim dependencies thereof, based upon the Examiner's renumbering of the claims.

No new matter has been added.

### II. REQUIREMENT FOR RESTRICTION

At pages 2-3 of the Office action, the Examiner has reduced to writing the requirement for restriction made telephonically in September, 2002. Applicants affirm their election of Group II, claims 29-43, with traverse.

In order for the Examiner's requirement for restriction to be proper, the Examiner must carry his burden of establishing that the groups of claims are patentably distinct. Applicants take no position on whether patentable distinctness in fact exists. Instead, Applicants merely note that the Examiner has failed to carry his burden to establish patentable distinctness, and as a result, the requirement for restriction is improper.

The Examiner asserts that the product of the claims of Group II can be made by a materially different process from that recited in the claims of Group I. However, the Examiner provides no explanation of what such an alternative process might be.

Accordingly, the Examiner has not carried his burden, and the claims of Group I should be rejoined with those of Group II for examination on the merits.

### III. EXAMINER'S COMMENTS REGARDING FAX HEADERS

At pages 3 and 4 of the Office action, the Examiner rather cryptically "observes" that one page of the specification submitted with this application bears a fax header with a date different from that of the other pages. Although the Examiner does not make any objections based upon his observations, in order to address any concerns that the Examiner may have, Applicants will submit a substitute declaration executed after April 12, 2001.

### IV. REJECTIONS UNDER 35 U.S.C. § 112, FOURTH PARAGRAPH

At pages 4-5 of the Office action, the Examiner has rejected claims 30-34 and 36-43 under 35 U.S.C. § 112, fourth paragraph, as failing to refer to a previously set forth claim. Applicants respectfully traverse this rejection. The amendments to the claims made herein remove any improper dependency raised by the Examiner's renumbering of the claims and therefore obviate this rejection, which should be withdrawn.

### V. REJECTIONS UNDER 35 U.S.C. § 112, SECOND PARAGRAPH

At page 5 of the Office action, the Examiner has rejected claims 30-35 under 35 U.S.C. § 112, second paragraph, as indefinite.

The rationale for the Examiner's rejection is based on the misnumbered claim dependencies resulting from the Examiner's renumbering of the claims. This rejection has been obviated by the amendments to the claim dependencies made herein. Accordingly, this rejection is traversed and should be withdrawn.

At pages 5 and 6 of the Office action, the Examiner has rejected claims 36-43 under 35 U.S.C. § 112, second paragraph as being indefinite.

Again, the amendment to the claim dependencies made herein obviate this rejection, which is traversed and should be withdrawn.

At page 6, the Examiner has rejected claim 29 under 35 U.S.C. § 112, second paragraph as indefinite. Applicants respectfully traverse this rejection, and request reconsideration and withdrawal thereof.

The Examiner objects to the term "low melting index" as this term is used to refer to high density polyethylenes, on the basis that there is "no meaningful standard for characterizing a given melting index as 'low'" provided in the specification.

Applicants respectfully submit that it is unnecessary for the specification to define what the term "low" means in this context. As the Examiner is doubtless aware, the specification is directed to those of skill in the art. *See In re Folkers*, 145 USPQ 390 (CCPA 1965); *In re Chilowsky*, 108 USPQ 321, 324 (CCPA 1956) ("It is well settled that the disclosure of an application embraces not only what is expressly set forth in the words or drawings, but what would be understood by persons skilled in the art."). A patent need not teach, and preferably omits, that which is well known in the art. *See Hybritech Inc. v. Monoclonal Antibodies, Inc.*, 231 USPQ 81, 94 (Fed. Cir. 1986).

The term "low melting index" as used with polyethylenes is a term of art. It is used by, and familiar to, those skilled in the art of making and using thermoplastic materials. As evidence of this, a simple Google search for the search term "low melting index" yielded the article Gil, "Cork- current and new materials," enclosed

herewith, and found at <http://bioproducts-bioenergy.gov/pdfs/bcota/abstracts/26/72.pdf> (copy enclosed). In describing the binders used to agglomerate cork particles, the document states "Low-melting-index thermoplastics were chosen due to their advantages over conventional glues, namely the absence of solvents and non toxicity." Another reference, copy enclosed, resulting from this same Google search shows that this term is used to refer to the results obtained from art recognized test methods, such as ASTM D 1238, ISO 1133-1991, and the like. See "Polypropylen Raffia Grade," found at <http://www.sands.ch/pdf/plastic/862-020.pdf>.

In light of the clear existence of the term "low melting index" as a term of art used commercially to categorize thermoplastic binder materials according to the results of art recognized standardized testing, Applicants respectfully submit that their use of the term in claim 29 is not indefinite. Instead, one of skill in the art would readily recognize whether a particular polyethylene binder has a low melting index, and thus whether a particular granulated powder falls within the scope of the claim. This is all that is required for a claim to be clear and definite under 35 U.S.C. § 112, second paragraph. See *In re Miller*, 169 USPQ 597 (CCPA 1971).

#### VI. REJECTIONS UNDER 35 U.S.C. § 103(a)

At pages 6-7 of the Office action, the Examiner has rejected claim 29 under 35 U.S.C. § 103(a) as obvious over Markell (U.S. Patent No. 6,270,609). Applicants respectfully traverse this rejection and request reconsideration and withdrawal thereof.

Markell fails to teach or suggest the claimed invention because it does not teach or suggest a granulated powder purification material. The Examiner points out several places where Markell refers to the use of granules. However, Markell (1) does not teach inorganic particles agglomerated with binder to form granules used as a purification material. Instead, Markell discloses and claims introducing particulates into a tubular web structure and heating the tubular web structure to "activate the binder" and form a sorbent filter. See claim 1, as well as the specification of Markell at column 2, lines 61-64. Thus, according to Markell, the sorbent filter is not formed until after the binder has been heated inside the tubular web.

The specification also makes clear that this heating is well above the softening point of the binder resin, and that it is used to mold the material into a three-dimensional shaped filter monolith, in order to take maximum advantage of the available space in, e.g., a disk drive, avoiding the disadvantages of prior art monolithic materials. See column 2, lines 39-50; column 3, lines 40-43 (heating preferably preceded by or is simultaneous with a deformation or molding step); column 4, lines 27-34 ("heat set is to activate the binder and immobilize the particulate sorbents"); and column 10, lines 16-18 ("consolidated sorbent bodies").

By contrast, Applicants' claims make clear that it is the granulated powder that is the purification material, not some monolith formed by heating the powder above the melting temperature of the binder resin, and consolidating the mixture in a mold. This is significant, because the heating and molding step, necessary in Markell et al. to activate the binder, is an energy intensive step that is unnecessary for one to use the purification granules of the claimed invention.

At pages 7-8 of the Office action, the Examiner has rejected claim 29 under 35 U.S.C. § 103(a) as obvious over Serial No. 09/772,542 in view of published U.S.

Patent Application No. 2001/0042719 A1, further in view of Markell et al.

Applicants respectfully traverse this rejection.

Without taking any position on the propriety of the Examiner's citation of a non-published patent application as "prior art" under 35 U.S.C. § 103(a), Applicants respectfully submit that the Examiner's rejection is erroneous and should be withdrawn. Neither the cited patent application nor Markell et al. teach or suggest using powders of inorganic materials agglomerated into granules by a polymeric binder as the filtration media. Markell et al. teaches a monolithic material, as discussed at length above. The cited unpublished patent application is clearly directed to a novel type of carbon block material – carbon and zirconia formed into a block by mixing with binder and heating. It is not concerned with using granules formed by agglomerating inorganic particles with binder resin. For this reason alone, the combination of references does not teach or suggest the invention claimed by Applicants, and the rejection is erroneous even if one assumes, *arguendo*, that the Examiner has not inappropriately cited an unpublished patent application.

#### VII. REJECTION UNDER 35 U.S.C. § 112, FIRST PARAGRAPH

At page 8 of the Office action, the Examiner has rejected claim 29 under 35 U.S.C. § 112, first paragraph. Applicants respectfully traverse this rejection, and request reconsideration and withdrawal thereof.

The Examiner takes issue with the terminology "zero melting index" as used with respect to HDPE binder. Apparently, the Examiner interprets this term as

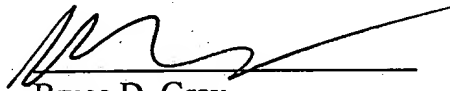
indicating that the binder has no tendency to flow, which the Examiner finds incredible.

As with the term "low melt index," the term "zero melt index" is a term of art used to designate HDPE materials with melt indices that are extremely low, because the material has extremely high molecular weight. For some HDPE materials, the molecular weight of the material is so high that melt index is not even measured, because it is essentially below the level at which measurement is practicable. For example, the Examiner's attention is directed to <http://www.ashchem.com/comm/GeneralPoly/cycle/2000/June.asp>, copy enclosed, which indicates in Table 1 that for certain extra high molecular weight HDPE materials, melt index is not even typically measured. These materials can be considered to have, for all practical purposes, a zero melt index. Since this material is easily available to, and known by, those having skill in this art, and since the claims are to be read in light of the specification when determining compliance with 35 U.S.C. § 112, Applicants respectfully submit that the specification and claims clearly described the invention, and enable one of skill in the art to make and use it. As a result, Applicants have complied with the requirements of 35 U.S.C. § 112, first paragraph, and this rejection should be withdrawn.

Applicants submit that this application is in condition for immediate allowance, and an early notification to that effect is earnestly solicited. If the Examiner has additional questions, or believes that further issues remain to be resolved, he is requested to contact the undersigned to arrange for a telephonic interview prior to the issuance of any final Office action.

The Commissioner is hereby authorized to charge any deficiencies or credit  
any overpayment to Deposit Order Account No. 11-0855.

Respectfully submitted,



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MARKED UP COPY OF AMENDED CLAIMS

29. (Amended) A granulated powder purification material comprising:  
inorganic particles having an average size ranging from about 20 nm to about  
200 microns in an amount ranging from about 1 wt% to about 75 wt% agglomerated  
with a low or zero melting index high-density polyethylene binder.
30. (Amended) The granulated powder purification material of claim [33] 29,  
further comprising core particles having an average particle size ranging from about 2  
mesh to about 200 mesh agglomerated with the inorganic particles and binder.
31. (Amended) The granulated powder purification material of claim [34] 30,  
wherein the core particles comprise alumina, zeolite, carbon, or mixtures thereof.
32. (Amended) The granulated powder purification material of claim [33] 29,  
wherein the inorganic particles comprise zirconia.
33. (Amended) The granulated powder purification material of claim [35] 31,  
wherein the core particles comprise alumina and the inorganic particles comprise  
zirconia.
34. (Amended) The granulated powder purification material of claim [35] 31,  
wherein the alumina is gamma alumina or alpha alumina.
35. (Amended) A method for reducing the level of contaminants in a fluid,  
comprising contacting the fluid with granulating powder purification material of  
claim [33] 29, thereby producing a reduced contaminant fluid.
36. (Amended) The method of claim [39] 35, wherein the contaminants  
comprise microbiological organisms, volatile organic compounds (VOC), heavy  
metals, or mixtures thereof.

37. (Amended) The method of claim [40] 36, wherein the microbiological organisms comprise bacteria.
38. (Amended) The method of claim [40] 36, wherein the fluid is air.
39. (Amended) The method of claim [40] 36, wherein the fluid is a compressed gas.
40. (Amended) The method of claim [43] 39, wherein the compressed gas is CO<sub>2</sub>.
41. (Amended) The method of claim [40] 36, wherein the fluid is water.
42. (Amended) The method of claim [45] 41, wherein the fluid is wastewater.
43. (Amended) The method of claim [45] 41, wherein the reduced contaminant fluid is potable water.